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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/528,513
Filing Date: March 18, 2005
Appellant(s): OKUTO ET AL.

Terrence M. Wyles
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12/07/08 appealing from the Office action mailed 08/22/08.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,981,877 B2	REN et al.	01-2006
6,737,181 B2	BECKMANN et al.	5-2004

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 6, 13, 14 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. The term "at a later time" in claims 6, 13, 14 is a relative term which renders the claim indefinite. The term "at a later time" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. Claims 1, 5, 6, 10, 16, 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Ren et al., U.S. Pat. No. 6,981,877 B2.

Rejection of claims 1, 5, 16, 19 drawn to a direct methanol fuel cell; claims 6, 10 drawn to a method for use with a direct methanol fuel cell.

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Ren et al., teach direct methanol fuel cell apparatus comprising: a fuel container; an anode adjacent the fuel container; a proton exchange membrane adjacent the anode; a cathode adjacent the proton exchange membrane; an oxygen supply adjacent the cathode (col. 5, lines 49-67; Fig. 1A, ref. 8 anode); the fuel container containing methanol in water at a first concentration (col. 9, lines 9-17); a cartridge selectively communicatively coupled with the fuel container; the cartridge containing fluid comprising methanol in water at a second concentration, the second concentration higher than the first concentration (col. 10, lines 1-8). The apparatus of claim 1 wherein the selective communicative coupling comprises a pump actuable by electronic means, said pump pumping fluid from the cartridge to the container (col. 10, lines 66-67 and col. 11, line 1). A method for use with a direct methanol fuel cell, the method comprising the steps of: bringing a first solution of methanol in water at a first concentration into contact with an anode, the first solution contained within a container (col. 9, lines 5-17); bringing oxygen into contact with a cathode, the cathode adjacent a proton exchange membrane and the proton exchange membrane adjacent the anode (col. 5, lines 49-67); bringing a cartridge into communicative coupling with the container, the volume of the container being greater than volume of cartridge (Fig. 7, ref. 700 fuel container, ref. 702; col. 9, lines 63-67 and col. 10, lines 1-5), the cartridge containing a second solution of methanol in water at a second concentration, the second concentration higher than the first concentration (col. 9, lines 9-17). The method of claim 6 wherein the step of bringing the cartridge into communicative coupling with the container comprises actuating a pump, said pump pumping fluid from the cartridge to the container (col. 10,

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lines 66-67 and col. 11, line 1). The cartridge selectively communicatively coupled with the fuel container is stationary with respect to the fuel container (col. 9, lines 63-67 and col. 10, lines 1-5).

Thus, the claims are anticipated.

3. Claims 11-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Beckmann et al., U.S. Pat. No. 6,737,181 B2.

Beckmann et al., teach a direct methanol fuel cell apparatus comprising: a fuel container; an anode adjacent the fuel container; a proton exchange membrane adjacent the anode; a cathode adjacent the proton exchange membrane; an oxygen supply adjacent the cathode (col. 2, lines 26-32); the fuel container containing methanol in water (col. 3, lines 20-30); and a stirrer (mixing pump) within the fuel container (col. 3, lines 20-34). The apparatus of claim 11 further comprising electronics operating the stirrer at intervals as a function of measurements made regarding the fuel cell apparatus (col. 4, lines 9-27). A method for use with a direct methanol fuel cell, the method comprising the steps of: bringing a solution of methanol in water into contact with an anode, the solution contained within a container; bringing oxygen into contact with a cathode, the cathode adjacent a proton exchange membrane and the proton exchange membrane adjacent the anode; at a later time, stirring the solution (col. 4, lines 9-27), wherein the stirring occurs as a result of a stirring by a stirrer contained within the container (col. 4, lines 9-27).

Thus, the claims are anticipated.

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Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 3, 7, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ren et al., U.S. Pat. No. 6,981,877 B2.

Ren et al., teach direct methanol fuel cell apparatus as described above.

Thus, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because although the prior art of record does not recite the apparatus of claim 1 wherein the second concentration is at least double the first concentration; the apparatus of claim 2 wherein the second concentration is at least triple the first concentration; the method of claim 6 wherein the second concentration is at least double the first concentration; the method of claim 7 wherein the second concentration is at least triple the first concentration; “generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) (MPEP 2144.05).

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6. Claims 4, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ren et al., U.S. Pat. No. 6,981,877 B2, in view of Becerra et al., U.S. Pat. Application Pub. 2004/0072049.

Ren et al., teach an apparatus as described above.

Becerra et al., teach the selective communicative coupling comprises a pushing pin actuable by a human user, said pin puncturing the cartridge (0044). The method of claim 6 wherein the step of bringing the cartridge into communicative coupling with the container comprises a human user pushing a pin, said pin puncturing the cartridge (0044). It teaches a safety lock (0056). It teaches the pin is movable in relation to the fuel container (0044).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to insert the teachings of Becerra et al., into the teachings of Ren et al., because Becerra et al., disclose that a “needle 223 may be used to puncture the seal 224 as well as the flexible bladder 204 in order to draw fuel out of the bladder into the DMFC.”

Claim Rejections - 35 USC § 102/103

7. Claim 14 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Beckmann et al., U.S. Pat. No. 6,737,181 B2.

Beckmann et al., teach a method for use with a DMFC, method comprising steps of bringing a solution of methanol in water into contact with an anode (col. 1, lines 62-67 and col. 2, lines 1-4), solution within container; bringing oxygen into contact with a

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cathode (col. 2, lines 7-9), cathode adjacent to proton exchange membrane and proton exchange membrane adjacent to anode; wherein the stirring occurs as a result of a human user moving the fuel cell while it is in use (col. 2, lines 47-50).

Thus, the claim is anticipated.

However, if the claim is not anticipated, in the alternative, the claim is obvious because if a human moves the fuel cell while it is in use, inherently, stirring would occur during its movement.

(10) Response to Argument

Applicant argues that claim 6 is not ambiguous, and that the term, “at a later time” “indicates that a cartridge is not to be brought into communicative coupling with the container until after oxygen is brought into contact with the cathode.” However, “at a later time” is a broad statement which can mean any range of time, as long as it is not performed prior to or performed simultaneously.

Applicant argues that Ren does not teach an anode adjacent the fuel container; however, “adjacent” is a relative term which can be defined as “nearby” or “neighboring”. Thus, the anode is adjacent the fuel container.

Applicant argues that Ren does not teach “the volume of the container being greater than the volume of the cartridge”; however, col. 10, lines 1-25, teach a container and a cartridge; since the container encompasses the cartridge, the container would necessarily have a greater volume than the cartridge.

Applicant argues that Ren does not teach a push pin in dependent claim 9; however, the 103 Rejection describes Becerra as disclosing a push pin.

Applicant argues that the prior art of record does not teach a “stirrer within the fuel container” and that “Beckmann discloses a separate mixing chamber”; however, providing a stirrer in a container, whether it is a fuel container or a mixing chamber, is well-known in the art.

Applicant argues that “Applicant has not claimed that the second concentration being at least double the first concentration is somehow 'optimal'”; however, Ren teaches “As will be understood by those skilled in the art, it is desirable to mix the

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methanol or methanol solution with water in order to adjust the concentration of fuel delivered to the fuel cell. In some instances, a high concentration of fuel (or a pure methanol) may be needed to start up a system, or satisfy high power demands. A lower concentration fuel might be needed to continuously power a system or to provide power for critical, low power functions" (col. 10, lines 27-37). Thus, optimal concentrations of fuel are needed to suffice various operations of the fuel cell system.

Applicant argues that one skilled in the art would not "infer that a human user should or could adequately stir the solution by way of in-use agitation by the human user." However, "stirring occurs as a result of a human user moving the fuel cell while it is in use" does not portend that the "stirring" is intentionally and wittingly produced, and thus, the "stirring" may be a result of ordinary use of the device in which the fuel cell is enclosed.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Angela J. Martin

/Angela J. Martin/

Examiner, Art Unit 1795

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